

# I-Chao Shen

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<https://jdily.github.io>

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## Research Interests

- Computer graphics, vector graphics, data-driven 2D/3D geometry analysis and processing, machine learning.

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## Education

- **National Taiwan University** **Taipei, Taiwan**  
*Ph.D.* in Computer Science *Sep 2017 - Dec. 2020*  
Advisor: Bing-Yu Chen.  
Thesis: 2D Visual Content Design Driven by Human-Guided Optimization
- **National Taiwan University** **Taipei, Taiwan**  
*Master in Information Management and MBA* *Sep 2009 - June 2011*  
Advisor: Bing-Yu Chen.  
Thesis: Perspective-aware Warping for Seamless Stereoscopic Image Cloning
- **National Taiwan University** **Taipei, Taiwan**  
*Bachelor in Information Management* *Sep 2005 - June 2009*

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## Experiences

- **Postdoctoral researcher - JSPS Foreign Researchers Fellowship**, Tokyo, Japan *Dec. 2020 -*  
Host : Takeo Igarashi
- **Research Visitor - JST CREST Project**, Tokyo, Japan *Feb 2018 - July 2018, Aug 2019*  
Supervisor : Takeo Igarashi
- **Research Assistant - CMLab, National Taiwan University**, Taipei, Taiwan *Apr 2017 - July 2017*  
Supervisor : Bing-Yu Chen
- **Research Assistant - Imager Lab, The University of British Columbia**,  
Vancouver, Canada *Sep 2014 - Mar 2017*  
Supervisor : Alla Sheffer
- **Research Intern - Imagination Lab, Adobe Research**, San Jose, CA *May 2015 - Aug 2015*  
Supervisor : Nathan Carr, Duygu Ceylan, Zhaowen Wang
- **Research Assistant - CITI, Academia Sinica**, Taipei, Taiwan *Sep 2011 - July 2014*  
Supervisor : Wen-Huang Cheng

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## Publications

- **Per Garment Capture and Synthesis for Real-time Virtual Try-on**  
Toby Chong, I-Chao Shen, Nobuyuki Umetani, Takeo Igarashi  
in proceeding of User Interface Software and Technology (UIST) 2021
- **ClipGen: A Deep Generative Model for Clipart Vectorization and Synthesis**  
I-Chao Shen, Bing-Yu Chen  
IEEE Transactions on Visualization and Computer Graphics (TVCG) 2021
- **Multi-Resolution Shared Representative Filtering for Real-Time Depth Completion**  
Yu-Ting Wu, Tzu-Mao Li, I-Chao Shen, Hong-Shiang Lin, Yung-Yu Chuang  
High-Performance Graphics (HPG) 2021
- **ClipFlip : Multi-view Clipart Design**  
I-Chao Shen, Kuan-Hung Liu, Li-Wen Su, Yu-Ting Wu, and Bing-Yu Chen  
Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:2008.12933 [cs.GR]
- **Interactive Optimization of Generative Image Modeling using Sequential Subspace Search and Content-based Guidance**  
Toby Chong Long Hin\*, I-Chao Shen\*, Issei Sato, and Takeo Igarashi (\*: joint first authors)  
Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:1906.09840 [cs.GR]

- **ZomeFab: Cost-effective Hybrid Fabrication with Zometools**  
I-Chao Shen, Ming-Shiuan Chen, Chun-Kai Huang, and Bing-Yu Chen  
Computer Graphics Forum, Volume 39, Issue 1, Feb 2020
- **Director-360: Introducing Camera Handling to 360 Cameras**  
Hao-Juan Huang, I-Chao Shen, and Liwei Chan  
in proceeding of MobileHCI 2020
- **Perception-Driven Semi-Structured Boundary Vectorization**  
Shayan Hoshyari, Edoardo Dominici, Alla Sheffer, Nathan Carr, Duygu Ceylan, Zhaowen Wang, I-Chao Shen  
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2018).
- **High-resolution 360 Video Foveated Stitching for Real-time VR**  
Wei-Tse Lee\*, Hsin-I Chen\*, Ming-Shiuan Chen, I-Chao Shen and Bing-Yu Chen  
Computer Graphics Forum (Proceedings of Pacific Graphics 2017)
- **A Scalable Active Framework for Region Annotation in 3D Shape Collections**  
Li Yi, Vladimir G. Kim, Duygu Ceylan, I-Chao Shen, Mengyan Yan, Hao Su, Cewu Lu, Qixing Huang, Alla Sheffer, and Leonidas Guibas  
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2016)
- **Retargeting 3D Objects and Scenes with a General Framework**  
Chun-Kai Huang, Yi-Ling Chen, I-Chao Shen, and Bing-Yu Chen  
Computer Graphics Forum (Proceedings of Pacific Graphics 2016)
- **Data-driven Handwriting Synthesis in a Conjoined Manner**  
Hsin-Yi Chen, Tse-Ju Lin, I-Chao Shen, and Bing-Yu Chen  
Computer Graphics Forum (Proceedings of Pacific Graphics 2015)
- **Gestalt Rule Feature Points**  
I-Chao Shen, and Wen-Huang Cheng  
IEEE Transactions on Multimedia (TMM), 17(4), pp. 526-537, 2015
- **Geometrically Consistent Stereoscopic Image Editing using Patch-based Synthesis**  
Sheng-Jie Luo, Ying-Tse Sun, I-Chao Shen, Bing-Yu Chen, and Yung-Yu Chuang  
IEEE Transactions on Visualization and Computer Graphics (TVCG), 21(1), pp. 56-67, 2015
- **Stroke-guided Image Synthesis for Skeletal Structure Editing**  
Sheng-Jie Luo, Chin-Yu Lin, I-Chao Shen, and Bing-Yu Chen  
Computer Graphics Forum (Proceedings of Pacific Graphics 2013)
- **Perspective-Aware Warping for Seamless Stereoscopic Image Cloning**  
Sheng-Jie Luo, I-Chao Shen, Bing-Yu Chen, Wen-Huang Cheng, and Yung-Yu Chuang  
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2012).

## Technical Reports and Preprints

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- **Accurate Anatomy Transfer using Medical Imaging**  
I-Chao Shen, Li-An Chung, Bing-Yu Chen  
submitted to journal of Computer Graphics Technique

## Workshop Papers, Short Papers, Posters

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- **Transferring Deep Reinforcement Learning with Adversarial Objective and Augmentation**  
I-Chao Shen, Shu-Hsuan Hsu, and Bing-Yu Chen  
IJCAI-PRICAI 2020 Workshop on Knowledge-Based Reinforcement Learning (KBRL)
- **Large-scale fabrication with interior zometool structure**  
Ming-Shiuan Chen, I-Chao Shen, Chun-Kai Huang, and Bing-Yu Chen  
ACM SIGGRAPH Poster Program 2018
- **A Deep Learning Based Method For 3D Human Pose Estimation From 2D Fisheye Images**  
Ching-Chun Chen, Chia-Min Wu, I-Chao Shen, and Bing-Yu Chen.  
ACM IUI Poster Program 2018

- **Retargeting 3D objects and scenes**  
Chun-Kai Huang, Yi-Ling Chen, I-Chao Shen, and Bing-Yu Chen  
ACM SIGGRAPH Poster Program 2015
- **Painting Photolization**  
Chien-Wen Jung, I-Chao Shen, Sheng-Jie Luo, Bing-Yu Chen, and Wen-Huang Cheng  
ACM SIGGRAPH ASIA Poster Program 2013
- **Texturing and Deforming Meshes with Casual Images**  
I-Chao Shen, Yi-Hua Wang, Yu-Mei Chen, Bing-Yu Chen, and Wen-Huang Cheng  
ACM SIGGRAPH ASIA Poster Program 2012
- **User-Assisted Disparity Maps**  
Hsin-Yi Chen, Yi-Shan Lin, I-Chao Shen, Sheng-Jie Luo, Wen-Huang Cheng and Bing-Yu Chen  
Pacific Graphics 2012 short paper
- **MusicSpace: You “Play” The Music**  
Chun-Yu Tsai, Hung-Jung Lin, Tzu-Hao Kuo, Kai-Yin Cheng, I-Chao Shen, Bing-Yu Chen, and Rung-Huei Liang  
ACM SIGGRAPH Poster Program 2010

## Patent

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- **Smoothing images using machine learning**  
Nathan A Carr, Zhaowen Wang, Duygu Ceylan, I-Chao Shen  
United States Patent, No. 9799102, issued October 24, 2017.

## Awards and Grants

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- AIP Challenge Researcher, Japan Science and Technology Agency (JST), Japan, *2021 - 2022*
- JSPS Grant-in-Aid for Scientific Research for JPSP foreign fellow, Japan, *2021 - 2023*
- JSPS Postdoctoral Fellowship for Foreign Researchers *2020 -*
- MediaTek Fellowship *2017 - 2020*

## Invited Talks

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- 2D Visual Content Design Driven by Human-Guided Optimization, *Apr. 2021*  
*The University of Tokyo*

## Professional Services

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- **Reviewer:**
  - SIGGRAPH, SIGGRAPH ASIA
  - Pacific Graphics
  - CAD/Graphics
  - Transaction on Multimedia
  - VRST
  - WACV